US

特　許　協　力　条　約

PCT

国際調査報告

（法８条、法施行規則第40、41条）
〔ＰＣＴ１８条、ＰＣＴ規則43、44〕

出願人又は代理人 の書類記号　MOA-104PCT	今後の手続きについては、国際調査報告の送付通知様式（ＰＣＴ／ＩＳＡ／２２０）及び下記５を参照すること。	
国際出願番号 ＰＣＴ／ＪＰ００／０６５１２	国際出願日 （日.月.年）　22.09.00	優先日 （日.月.年）　24.09.99
出願人（氏名又は名称） 農林水産省農業生物資源研究所長が代表する日本国		

国際調査機関が作成したこの国際調査報告を法施行規則第41条（ＰＣＴ１８条）の規定に従い出願人に送付する。
この写しは国際事務局にも送付される。

この国際調査報告は、全部で　3　ページである。

☐ この調査報告に引用された先行技術文献の写しも添付されている。

１．国際調査報告の基礎

ａ．言語は、下記に示す場合を除くほか、この国際出願がされたものに基づき国際調査を行った。
☐ この国際調査機関に提出された国際出願の翻訳文に基づき国際調査を行った。

ｂ．この国際出願は、ヌクレオチド又はアミノ酸配列を含んでおり、次の配列表に基づき国際調査を行った。
☐ この国際出願に含まれる書面による配列表
☐ この国際出願と共に提出されたフレキシブルディスクによる配列表
☐ 出願後に、この国際調査機関に提出された書面による配列表
☐ 出願後に、この国際調査機関に提出されたフレキシブルディスクによる配列表
☐ 出願後に提出した書面による配列表が出願時における国際出願の開示の範囲を超える事項を含まない旨の陳述書の提出があった。
☐ 書面による配列表に記載した配列とフレキシブルディスクによる配列表に記録した配列が同一である旨の陳述書の提出があった。

２．☐ 請求の範囲の一部の調査ができない（第Ⅰ欄参照）。

３．☐ 発明の単一性が欠如している（第Ⅱ欄参照）。

４．発明の名称は
☒ 出願人が提出したものを承認する。
☐ 次に示すように国際調査機関が作成した。

５．要約は
☒ 出願人が提出したものを承認する。
☐ 第Ⅲ欄に示されているように、法施行規則第47条（ＰＣＴ規則38.2(b)）の規定により国際調査機関が作成した。出願人は、この国際調査報告の発送の日から１カ月以内にこの国際調査機関に意見を提出することができる。

６．要約書とともに公表される図は、
第＿＿＿＿図とする。☐ 出願人が示したとおりである。　☒ なし
☐ 出願人は図を示さなかった。
☐ 本図は発明の特徴を一層よく表している。

国際調査報告

国際出願番号　ＰＣＴ／ＪＰ００／０６５１２

A.　発明の属する分野の分類（国際特許分類（ＩＰＣ））

Int.Cl.7　G01N27/447

B.　調査を行った分野

調査を行った最小限資料（国際特許分類（ＩＰＣ））

Int.Cl.7　G01N27/447

最小限資料以外の資料で調査を行った分野に含まれるもの

日本国実用新案公報	１９２２－１９９６年
日本国公開実用新案公報	１９７１－２０００年
日本国登録実用新案公報	１９９４－２０００年
日本国実用新案登録公報	１９９６－２０００年

国際調査で使用した電子データベース（データベースの名称、調査に使用した用語）

JOIS：ﾗｲﾌﾞﾗﾘｰ*座標*クローン

BIOSIS: LIBRA?*COORDINATE?*CLON?*SCREENING?

C.　関連すると認められる文献

引用文献のカテゴリー＊	引用文献名　及び一部の箇所が関連するときは、その関連する箇所の表示	関連する請求の範囲の番号
Y	島本功、佐々木卓治監修「細胞工学別冊　植物細胞工学シリーズ７　新版植物のＰＣＲ実験プロトコール　－核酸の単利法とゲノム・遺伝子発現の最新解析法－」株式会社秀潤社、1997年７月1日、第１版第１刷発行、第182-189頁及び奥付 第184頁第22-30行「器具・装置」の欄「ミニゲル電気泳動装置（アドバンス；Mupid-2）」 第186頁図２	1-14, 17
Y	JP, 09-043196, A　（農林水産省生物資源研究所長）　14.2月.1997　（14.02.97）第１図、（ファミリー無し）	1-14, 17

☒ Ｃ欄の続きにも文献が列挙されている。　　☐ パテントファミリーに関する別紙を参照。

＊　引用文献のカテゴリー

「A」特に関連のある文献ではなく、一般的技術水準を示すもの

「E」国際出願日前の出願または特許であるが、国際出願日以後に公表されたもの

「L」優先権主張に疑義を提起する文献又は他の文献の発行日若しくは他の特別な理由を確立するために引用する文献（理由を付す）

「O」口頭による開示、使用、展示等に言及する文献

「P」国際出願日前で、かつ優先権の主張の基礎となる出願の日の後に公表された文献

「T」国際出願日又は優先日後に公表された文献であって出願と矛盾するものではなく、発明の原理又は理論の理解のために引用するもの

「X」特に関連のある文献であって、当該文献のみで発明の新規性又は進歩性がないと考えられるもの

「Y」特に関連のある文献であって、当該文献と他の１以上の文献との、当業者にとって自明である組合せによって進歩性がないと考えられるもの

「&」同一パテントファミリー文献

国際調査を完了した日 11.10.00	国際調査報告の発送日 24.10.00
国際調査機関の名称及びあて先 日本国特許庁（ＩＳＡ／ＪＰ） 郵便番号１００－８９１５ 東京都千代田区霞が関三丁目４番３号	特許庁審査官（権限のある職員） 郡山　順　２Ｊ　８５０２ 電話番号　０３－３５８１－１１０１　内線　３２５２

様式ＰＣＴ／ＩＳＡ／２１０（第２ページ）（１９９８年７月）

Ｃ（続き）．　関連すると認められる文献

引用文献のカテゴリー＊	引用文献名　及び一部の箇所が関連するときは、その関連する箇所の表示	関連する請求の範囲の番号
Y	JP, 08-166370, A(弘田憲史) 25.6月.1996(25.06.96)　【0010】、第２図（ファミリー無し）	1-14, 17
Y	US, 5051162, A (HITACHI LTD) 24.9月.1991(24.09.91)　FIG.1 JP, 08-251988, A & DE, 4011779, A	1-14, 17

PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Commissioner
US Department of Commerce
United States Patent and Trademark Office, PCT
2011 South Clark Place Room CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 30 May 2001 (30.05.01)	
International application No. PCT/JP00/06512	**Applicant's or agent's file reference** MOA-104PCT
International filing date (day/month/year) 22 September 2000 (22.09.00)	**Priority date** (day/month/year) 24 September 1999 (24.09.99)
Applicant KAWASAKI, Shinji et al	

1. The designated Office is hereby notified of its election made:

[X] in the demand filed with the International Preliminary Examining Authority on:

23 February 2001 (23.02.01)

[ ] in a notice effecting later election filed with the International Bureau on:

2. The election [X] was

[ ] was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO **34, chemin des Colombettes** **1211 Geneva 20, Switzerland**	Authorized officer Henrik Nyberg
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

ST

特　許　協　力　条　約

PCT

国際予備審査報告

（法第１２条、法施行規則第56条）
〔ＰＣＴ３６条及びＰＣＴ規則70〕

出願人又は代理人 の書類記号　ＭＯＡ－１０４ＰＣＴ	今後の手続きについては、国際予備審査報告の送付通知（様式ＰＣＴ／ＩＰＥＡ／４１６）を参照すること。	
国際出願番号 ＰＣＴ／ＪＰ００／０６５１２	国際出願日 （日.月.年）　２２．０９．００	優先日 （日.月.年）　２４．０９．９９
国際特許分類（ＩＰＣ）　Ｉｎｔ．Ｃｌ⁷　G01N27/447		
出願人（氏名又は名称） 独立行政法人農業生物資源研究所		

1．　国際予備審査機関が作成したこの国際予備審査報告を法施行規則第57条（ＰＣＴ３６条）の規定に従い送付する。

2．　この国際予備審査報告は、この表紙を含めて全部で　5　ページからなる。

☐　この国際予備審査報告には、附属書類、つまり補正されて、この報告の基礎とされた及び／又はこの国際予備審査機関に対してした訂正を含む明細書、請求の範囲及び／又は図面も添付されている。
（ＰＣＴ規則70.16及びＰＣＴ実施細則第６０７号参照）
この附属書類は、全部で＿＿＿＿＿＿ページである。

3．　この国際予備審査報告は、次の内容を含む。

I　☒　国際予備審査報告の基礎

II　☐　優先権

III　☐　新規性、進歩性又は産業上の利用可能性についての国際予備審査報告の不作成

IV　☐　発明の単一性の欠如

V　☒　ＰＣＴ３５条(2)に規定する新規性、進歩性又は産業上の利用可能性についての見解、それを裏付けるための文献及び説明

VI　☐　ある種の引用文献

VII　☐　国際出願の不備

VIII　☐　国際出願に対する意見

国際予備審査の請求書を受理した日 ２３．０２．０１	国際予備審査報告を作成した日 ０３．０７．０１
名称及びあて先 日本国特許庁（ＩＰＥＡ／ＪＰ） 郵便番号１００－８９１５ 東京都千代田区霞が関三丁目４番３号	特許庁審査官（権限のある職員）　２Ｊ　８５０２ 郡山　順 電話番号　０３－３５８１－１１０１　内線　３２５２

様式ＰＣＴ／ＩＰＥＡ／４０９（表紙）（１９９８年７月）

国際予備審査報告

国際出願番号　ＰＣＴ／ＪＰ００／０６５１２

Ⅰ．　国際予備審査報告の基礎

1．　この国際予備審査報告は下記の出願書類に基づいて作成された。（法第６条（ＰＣＴ１４条）の規定に基づく命令に応答するために提出された差し替え用紙は、この報告書において「出願時」とし、本報告書には添付しない。ＰＣＴ規則70.16, 70.17）

☒ 出願時の国際出願書類

☐ 明細書　第 ＿＿＿＿＿＿＿＿ ページ、　出願時に提出されたもの
明細書　第 ＿＿＿＿＿＿＿＿ ページ、　国際予備審査の請求書と共に提出されたもの
明細書　第 ＿＿＿＿＿＿＿＿ ページ、　＿＿＿＿＿＿＿＿ 付の書簡と共に提出されたもの

☐ 請求の範囲　第 ＿＿＿＿＿＿＿＿ 項、　出願時に提出されたもの
請求の範囲　第 ＿＿＿＿＿＿＿＿ 項、　ＰＣＴ１９条の規定に基づき補正されたもの
請求の範囲　第 ＿＿＿＿＿＿＿＿ 項、　国際予備審査の請求書と共に提出されたもの
請求の範囲　第 ＿＿＿＿＿＿＿＿ 項、　＿＿＿＿＿＿＿＿ 付の書簡と共に提出されたもの

☐ 図面　第 ＿＿＿＿＿＿＿＿ ページ／図、　出願時に提出されたもの
図面　第 ＿＿＿＿＿＿＿＿ ページ／図、　国際予備審査の請求書と共に提出されたもの
図面　第 ＿＿＿＿＿＿＿＿ ページ／図、　＿＿＿＿＿＿＿＿ 付の書簡と共に提出されたもの

☐ 明細書の配列表の部分　第 ＿＿＿＿＿＿＿＿ ページ、　出願時に提出されたもの
明細書の配列表の部分　第 ＿＿＿＿＿＿＿＿ ページ、　国際予備審査の請求書と共に提出されたもの
明細書の配列表の部分　第 ＿＿＿＿＿＿＿＿ ページ、　＿＿＿＿＿＿＿＿ 付の書簡と共に提出されたもの

2．　上記の出願書類の言語は、下記に示す場合を除くほか、この国際出願の言語である。

上記の書類は、下記の言語である ＿＿＿＿＿＿＿＿ 語である。

☐ 国際調査のために提出されたＰＣＴ規則23.1(b)にいう翻訳文の言語
☐ ＰＣＴ規則48.3(b)にいう国際公開の言語
☐ 国際予備審査のために提出されたＰＣＴ規則55.2または55.3にいう翻訳文の言語

3．　この国際出願は、ヌクレオチド又はアミノ酸配列を含んでおり、次の配列表に基づき国際予備審査報告を行った。

☐ この国際出願に含まれる書面による配列表
☐ この国際出願と共に提出されたフレキシブルディスクによる配列表
☐ 出願後に、この国際予備審査（または調査）機関に提出された書面による配列表
☐ 出願後に、この国際予備審査（または調査）機関に提出されたフレキシブルディスクによる配列表
☐ 出願後に提出した書面による配列表が出願時における国際出願の開示の範囲を超える事項を含まない旨の陳述書の提出があった
☐ 書面による配列表に記載した配列とフレキシブルディスクによる配列表に記録した配列が同一である旨の陳述書の提出があった。

4．　補正により、下記の書類が削除された。
☐ 明細書　第 ＿＿＿＿＿＿＿＿ ページ
☐ 請求の範囲　第 ＿＿＿＿＿＿＿＿ 項
☐ 図面　図面の第 ＿＿＿＿＿＿＿＿ ページ／図

5．☐ この国際予備審査報告は、補充欄に示したように、補正が出願時における開示の範囲を越えてされたものと認められるので、その補正がされなかったものとして作成した。（ＰＣＴ規則70.2(c)　この補正を含む差し替え用紙は上記１．における判断の際に考慮しなければならず、本報告に添付する。）

国際予備審査報告 | 国際出願番号 PCT／JP00／06512

V. 新規性、進歩性又は産業上の利用可能性についての法第１２条（ＰＣＴ３５条(2)）に定める見解、それを裏付ける文献及び説明

1. 見解

新規性（N）	請求の範囲	1-17	有
	請求の範囲		無
進歩性（ＩＳ）	請求の範囲	15, 16	有
	請求の範囲	1-14, 17	無
産業上の利用可能性（ＩＡ）	請求の範囲	1-17	有
	請求の範囲		無

2. 文献及び説明（ＰＣＴ規則70.7）

文献１：島本功、佐々木卓治監修「細胞工学別冊　植物細胞工学シリーズ７　新版植物のＰＣＲ実験プロトコール　－核酸の単利法とゲノム・遺伝子発現の最新解析法－」株式会社秀潤社、1997年７月1日、第１版第１刷発行、第182-189頁及び奥付第184頁第22-30行「器具・装置」の欄「ミニゲル電気泳動装置（アドバンス；Mupid-2）」
第186頁図２（シークエンサーApplied Biosystems 373Aを使用したゲル板を撮影したもの）

文献２：JP 09-043196 A （農林水産省生物資源研究所長） 14.2月.1997（14.02.97）第１図、（ファミリー無し）

文献３：JP 08-166370 A(弘田憲史) 25.6月.1996(25.06.96) 【0010】、第２図（ファミリー無し）

文献４：US 5051162 A (HITACHI LTD) 24.9月.1991(24.09.91) FIG.1
JP 08-251988 A & DE 4011779 A
第４欄第５１－６１行には、ＤＮＡを300mm×200mmのゲルを用いて３０試料を分析できる旨が記載されている。

文献５：Electrophoresis,14(7), p.566-569 (1993)
DNAバンドを銀染色すること、ポリアクリルアミドゲル電気泳動において不連続緩衝液を用いて遺伝子の多型性を検出する旨が記載されている。

文献６：Electrophoresis,16(3) p.345-349 (1995)
不連続緩衝液系において、DNAバンド幅が減少し、分解能が増大する旨が記載されている。

文献７：Applied and Environmental Microbiology, 62(8) p.2947-2951 (1996)
第2949頁右欄第28-43行及び第２図には、変性剤であるformamdeを含有するゲルを使用することで、バンドの分解能が高まる旨が記載されている。

文献８：Electorophoreis,20(6) p.1177-1185 (1999年6月)
多型性の分析に使用されるHeterodupulex法が記載されている（要約の項）

補充欄（いずれかの欄の大きさが足りない場合に使用すること）

第　V　欄の続き

（1）請求の範囲1
請求の範囲1に係る発明と引用文献4に係る発明を対比すると、請求の範囲1に係る発明がゲル板一枚当たり32以上の試料を同時に電気泳動することが出来るのに対して、文献4記載の発明は30の試料を同時に電気泳動することが出来る点で構成が相違する。
しかしながら、試料をいくつ流すかはレーンの幅や間隔を適宜変更する等して、当業者が適宜決めることが出来る設計的事項と認められる。
したがって、請求の範囲1に係る発明は文献4から容易に発明し得たものであり、進歩性がない。

（2）請求の範囲2
上記(1)に記した理由に加えて、不連続緩衝液型ゲルを使用する核酸の電気泳動法は文献5，6に記載されているように周知である。
したがって、請求の範囲2に係る発明は文献4及び周知の事項から容易に発明し得たものであり、進歩性がない。

（3）請求の範囲3
上記(1)に記した理由に加えて、核酸試料を変性処理で一本鎖にして解析することは、例示するまでもなく出願前慣用されている解析方法である。
したがって、請求の範囲3に係る発明は文献4から容易に発明し得たものであり、進歩性がない。

（4）請求の範囲4
上記(1)に記した理由に加えて、核酸バンドを銀染色又は蛍光染色することは、例示するまでもなく慣用されている染色手段に過ぎない。
したがって、請求の範囲4に係る発明は文献4から容易に発明し得たものであり、進歩性がない。

（5）請求の範囲5
上記(1)に記した理由に加えて、ゲノムの多型性に電気泳動を用いることは慣用手段である。例えば、文献1、文献5等で多型性分析が行われている。
したがって、請求の範囲5に係る発明は文献4から容易に発明し得たものであり、進歩性がない。

（6）請求の範囲6
上記(3)に記した理由に加えて、文献7には、多型性分析において、変性ゲルを用いることが記載されている。
したがって、請求の範囲6に係る発明は文献4及び文献7から容易に発明し得たものであり、進歩性がない。

（7）請求の範囲7
上記(5)に記した理由に加えて、AFLP法を使用した多型性分析は、例えば文献1に記載さているように本出願前周知である。
したがって、請求の範囲7に係る発明は文献4から容易に発明し得たものであり、進歩性がない。

（8）請求の範囲8
上記(5)に記した理由に加えて、ヘテロ二本鎖DNAを使用した多型性分析は、例えば文献8に記載さているように本出願前周知である。
したがって、請求の範囲8に係る発明は文献4から容易に発明し得たものであり、進歩性がない。

補充欄（いずれかの欄の大きさが足りない場合に使用すること）

第　Ｖ　欄の続き

（９）請求の範囲９
上記(5)に記した理由に加えて、多型性分析において多型を示すDNA断片をゲルから単離して更に分析を行うことは、この分野で例示するまでもなく慣用されている。
したがって、請求の範囲９に係る発明は文献４から容易に発明し得たものであり、進歩性がない。

（１０）請求の範囲１０
上記(9)に記した理由と同様の理由で進歩性が認められない。
したがって、請求の範囲１０に係る発明は文献４から容易に発明し得たものであり、進歩性がない。
なお、請求の範囲１０は、多型を示すDNAを特定するのに「請求項９に記載の方法で単離された」という表現を用いている。しかしながら、多型を示すDNAが請求項９の方法で取得されたからといって、他の方法で取得された多型を示すDNAと比較して特別な性質、構造、特性等を有するものではない。

（１１）請求の範囲１１
上記(5)に記した理由に加えて、核酸を電気泳動することで遺伝分析を行うことは、例示するまでもなく慣用手段である。
したがって、請求の範囲１１に係る発明は文献４から容易に発明し得たものであり、進歩性がない。

（１２）請求の範囲１２
上記(11)に記した理由に加えて、F2、RI、QTLは、遺伝分析の対象としてとして慣用されている。
したがって、請求の範囲１２に係る発明は文献４から容易に発明し得たものであり、進歩性がない。

（１３）請求の範囲１３、１４
上記(5)に記した理由に加えて、遺伝子の多型は、マーカーとして有効なことは例示するまでもなく周知であり、様々な遺伝子地図が作製されている。
したがって、請求の範囲１３，１４に係る発明は文献４から容易に発明し得たものであり、進歩性がない。

（１４）請求の範囲１５、１６
サブライブラリーのプレートに番号を振り付け三次元座標とし、クローンをサブライブラリーから選択することは、上記いずれの文献にも開示されていない。よって、請求の範囲１５に係る発明および請求の範囲１５を引用する従属発明は、進歩性を有する。

（１５）請求の範囲１７
上記(1)に記した理由と同様の理由で進歩性がない。

4T

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference MOA-104PCT	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/JP00/06512	International filing date (*day/month/year*) 22 September 2000 (22.09.00)	Priority date (*day/month/year*) 24 September 1999 (24.09.99)
International Patent Classification (IPC) or national classification and IPC G01N 27/447		
Applicant NATIONAL INSTITUTE OF AGROBIOLOGICAL SCIENCES		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 8 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
23 February 2001 (23.02.01)	03 July 2001 (03.07.2001)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/JP00/06512

I. Basis of the report

1. With regard to the **elements** of the international application:*

☒ the international application as originally filed

☐ the description:

pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

☐ the claims:

pages _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages _____, filed with the letter of _____

☐ the drawings:

pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

☐ the sequence listing part of the description:

pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____
☐ the claims, Nos. _____
☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* *Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).*

** *Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.*

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-17	YES
	Claims		NO
Inventive step (IS)	Claims	15, 16	YES
	Claims	1-14, 17	NO
Industrial applicability (IA)	Claims	1-17	YES
	Claims		NO

2. Citations and explanations

Document 1: Isao Shimamoto, Takuji Sasaki, "Saibou Kougaku Bessatsu, Shokubutsu Saibou Kougaku Series 7: Shinpan Shokubutsu no PCR Jikken Protocol; Kakusan no Tanrihou to Genome Idenshi Hatsugen no Saishin Kaisekihou", Kabushiki Kaisha Shujunsha, 01 July, 1997, the 1st printing and issue, pp. 182 to 189; publisher's inscription at the end of the book; page 184, lines 22 to 30,, column "Kigu•Souchi", "Mini Gel Denki Eidou Souchi (Advance; Mupid-2)";

Page 186, Fig. 2 shows a gel plate that has used Applied Biosystems 373A DNA sequencers.

Document 2: JP, 09-043196, A (Japan as represented by the Director General of Agriculture, Forestry and Fisheries National Institute of Agrobiological Resources), February 14, 1997 (14.02.97), Fig. 1, (Family: none)

Document 3: JP, 08-166370, A (Norifumi Hirota), June 25, 1996 (25.06.96), [0010]; Fig. 2, (Family: none)

Document 4: US, 5051162, A (Hitachi, Ltd.), September 24, 1991 (24.09.91), Fig. 1 & JP, 08-251988, A & DE, 4011779, A

Column 4, lines 51 to 61 indicate that the DNA of 30 samples can be analysed using 300 mm X 200 mm of gel.

Document 5: Electrophoresis, 14(7), pp. 566 to 569 (1993)

Document 5 discloses the feature of carrying out argentation on the DNA band and of detecting the polymorphism of the gene using a discontinuous buffer in polyacrylamide gel electrophoresis.

Document 6: Electrophoresis, 16(3), pp. 345 to 349 (1995)

Document 6 indicates that in a discontinuous buffer system the width of the DNA band becomes smaller and the resolution increases.

Document 7: Applied and Environmental Microbiology, 62(8), pp. 2947 to 2951 (1996)

Page 2949, right column, lines 28 to 43 and Fig. 2 indicate that by using a gel containing a modifier that is formamde, the resolution of the band can be increased.

Document 8: Electrophoresis, 20(6), pp. 1177 to 1185, (June 1999)

Document 8 discloses a heteroduplex method used in the analysis of polymorphism (See the abstract section).

(1) Claim 1

When comparing the invention disclosed in Claim 1 with the invention disclosed in Document 4, the invention disclosed in Claim 1 is able to carry out the electrophoresis of 32 samples or more simultaneously on a single sheet of a gel plate, whereas the invention disclosed in Document 4 is able to carry out the

electrophoresis of 30 samples simultaneously on a single sheet of a gel plate and in this sense the inventions differ.

However, a person skilled in the art would be able to determine the number of samples appropriately by altering the width and the intervals of the lanes as a matter of design.

Therefore, the invention disclosed in Claim 1 could be easily derived from the invention of Document 4 and thus, does not involve an inventive step.

(2) Claim 2

In addition to the reasoning given in section (1) above, an electrophoresis method for nucleic acid using a discontinuous buffer-type gel is a known method, as described in Documents 5 and 6.

Therefore, the invention disclosed in Claim 2 could be easily derived from the invention of Document 4 and this known method and thus, does not involve an inventive step.

(3) Claim 3

In addition to the reasoning given in section (1) above, the feature of analysing a nucleic acid sample by making it into a single strand using a modifying process is an analysing method which was sufficiently common practice prior to the present application so that there is no need to give examples.

Therefore, the invention disclosed in Claim 3 could be easily derived from the invention of Document 4 and thus, does not involve an inventive step.

(4) Claim 4

In addition to the reasoning given in section (1) above, the feature of carrying out argentation or fluorochroming on a nucleic acid band is merely a method

of chromatography for which there is no need to give examples.

Therefore, the invention disclosed in Claim 4 could be easily derived from the invention of Document 4 and thus, does not involve an inventive step.

(5) Claim 5

In addition to the reasoning given in section (1) above, the feature of using electrophoresis in genome polymorphism is common practice.

Therefore, the invention disclosed in Claim 5 could be easily derived from the invention of Document 4 and thus, does not involve an inventive step.

(6) Claim 6

In addition to the reasoning given in section (3) above, Document 7 discloses the use of a modifying gel in polymorphic analysis.

Therefore, the invention disclosed in Claim 6 could be easily derived from the inventions of Document 4 and Document 7 and thus, does not involve an inventive step.

(7) Claim 7

In addition to the reasoning given in section (5) above, polymorphic analysis using the AFLP method was known prior to the present application, as described in Document 1.

Therefore, the invention disclosed in Claim 7 could be easily derived from the invention of Document 4 and thus does not involve an inventive step.

(8) Claim 8

In addition to the reasoning given in section (5) above, polymorphic analysis using heteroduplex DNA was known prior to the present application, as described in

Document 8.

Therefore, the invention disclosed in Claim 8 could be easily derived from the invention of Document 4 and thus, does not involve an inventive step.

(9) Claim 9

In addition to the reasoning given in section (5) above, in polymorphic analysis isolating a DNA fragment that shows polymorphism from a gel and further analysing it, is sufficiently common practice in this field that there is no need to give examples.

Therefore, the invention disclosed in Claim 9 could be easily derived from the invention of Document 4 and thus, does not involve an inventive step.

(10) Claim 10

For the same reason as that given in section (9) above, Claim 10 does not involve an inventive step.

Claim 10 uses the phrase "isolated using the method disclosed in Claim 9" to specify the DNA showing polymorphism. However, just because the DNA showing polymorphism was obtained using the method of Claim 9 does not give it particular qualities, structures or properties in comparison with DNA showing polymorphism which is obtained using any other method.

(11) Claim 11

In addition to the reasoning given in section (5) above, carrying out gene analysis using the electrophoresis of a nucleic acid is sufficiently common practice that there is no need to give examples.

Therefore, the invention disclosed in Claim 11 could be easily derived from the invention of Document 4 and thus, does not involve an inventive step.

(12) Claim 12

In addition to the reasoning given in section (11) above, F2, RI and QTL are commonly the object of gene analysis.

Therefore, the invention disclosed in Claim 12 could be easily derived from the invention of Document 4 and thus, does not involve an inventive step.

(13) Claims 13 and 14

In addition to the reasoning given in section (5) above, the fact that the polymorphism of DNA is an effective marker is sufficiently well known so that there is no need to give examples and various DNA maps have been prepared.

Therefore, the invention disclosed in Claim 13 and 14 could be easily derived from the invention of Document 4 and thus, does not involve an inventive step.

(14) Claims 15 and 16

The feature wherein numbers are given to the plate of a sub-library as three-dimensional co-ordinates and the clone is selected from the sub-library is not disclosed in any of the above-mentioned documents. Therefore, the invention disclosed in Claim 15 and the invention disclosed in the dependent claim of Claim 15 involve an inventive step.

(15) Claim 17

Claim 17 does not involve an inventive step for the same reasoning given in section (1) above.

PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF THE RECORDING OF A CHANGE

(PCT Rule 92bis.1 and Administrative Instructions, Section 422)

To:

SHIMIZU, Hatsushi
Kantetsu Tsukuba Bldg. 6F
1-1-1, Oroshi-machi
Tsuchiura-shi, Ibaraki 300-0847
JAPON

Date of mailing (day/month/year)
25 June 2001 (25.06.01)

Applicant's or agent's file reference
MOA-104PCT

IMPORTANT NOTIFICATION

International application No.
PCT/JP00/06512

International filing date (day/month/year)
22 September 2000 (22.09.00)

1. The following indications appeared on record concerning:

[X] the applicant [ ] the inventor [ ] the agent [ ] the common representative

Name and Address

JAPAN as represented by DIRECTOR GENERAL OF MINISTRY OF AGRICULTURE, FORESTRY AND FISHERIES NATIONAL INSTITUTE OF AGROBIOLOGICAL RESOURCES
2-1-2, Kannondai
Tsukuba-shi, Ibaraki 305-8602
Japan

State of Nationality: JP
State of Residence: JP
Telephone No.:
Facsimile No.:
Teleprinter No.:

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

[X] the person [ ] the name [ ] the address [ ] the nationality [ ] the residence

Name and Address

NATIONAL INSTITUTE OF AGROBIOLOGICAL SCIENCES
2-1-2, Kannondai
Tsukuba-shi
Ibaraki 305-8602
Japan

State of Nationality: JP
State of Residence: JP
Telephone No.:
Facsimile No.:
Teleprinter No.:

3. Further observations, if necessary:

4. A copy of this notification has been sent to:

[X] the receiving Office
[ ] the International Searching Authority
[X] the International Preliminary Examining Authority
[ ] the designated Offices concerned
[X] the elected Offices concerned
[ ] other:

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland
Facsimile No.: (41-22) 740.14.35

Authorized officer
Susumu Kubo
Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF THE RECORDING OF A CHANGE

(PCT Rule 92bis.1 and Administrative Instructions, Section 422)

To:

SHIMIZU, Hatsushi
Kantetsu Tsukuba Bldg. 6F
1-1-1, Oroshi-machi
Tsuchiura-shi, Ibaraki 300-0847
JAPON

Date of mailing (day/month/year)
25 June 2001 (25.06.01)

Applicant's or agent's file reference
MOA-104PCT

IMPORTANT NOTIFICATION

International application No.
PCT/JP00/06512

International filing date (day/month/year)
22 September 2000 (22.09.00)

1. The following indications appeared on record concerning:

[X] the applicant [X] the inventor [ ] the agent [ ] the common representative

Name and Address
1) KAWASAKI, Shinji 2) KOMATSUDA, Takao
c/o Ministry of Agriculture,
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2-1-2, Kannondai
Tsukuba-shi, Ibaraki 305-8602
Japan

State of Nationality: JP
State of Residence: JP
Telephone No.:
Facsimile No.:
Teleprinter No.:

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

[ ] the person [ ] the name [X] the address [ ] the nationality [ ] the residence

Name and Address
1) KAWASAKI, Shinji 2) KOMATSUDA, Takao
c/o National Institute of
Agrobiological Sciences
2-1-2, Kannondai
Tsukuba-shi
Ibaraki 305-8602
Japan

State of Nationality: JP
State of Residence: JP
Telephone No.:
Facsimile No.:
Teleprinter No.:

3. Further observations, if necessary:

4. A copy of this notification has been sent to:

[X] the receiving Office
[ ] the International Searching Authority
[X] the International Preliminary Examining Authority
[ ] the designated Offices concerned
[X] the elected Offices concerned
[ ] other:

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland
Facsimile No.: (41-22) 740.14.35

Authorized officer
Susumu Kubo
Telephone No.: (41-22) 338.83.38

Copy for the Elected Office (EO/US)

PCT/JP00/06512

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING OF A CHANGE

(PCT Rule 92bis.1 and Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

SHIMIZU, Hatsushi
Kantetsu Tsukuba Bldg. 6F
1-1-1, Oroshi-machi
Tsuchiura-shi, Ibaraki 300-0847
JAPON

Date of mailing (day/month/year)
25 June 2001 (25.06.01)

Applicant's or agent's file reference
MOA-104PCT

IMPORTANT NOTIFICATION

International application No.
PCT/JP00/06512

International filing date (day/month/year)
22 September 2000 (22.09.00)

1. The following indications appeared on record concerning:

[X] the applicant [X] the inventor [ ] the agent [ ] the common representative

Name and Address

MANO, Yoshiro
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Japan

State of Nationality: JP
State of Residence: JP
Telephone No.:
Facsimile No.:
Teleprinter No.:

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

[ ] the person [ ] the name [X] the address [ ] the nationality [ ] the residence

Name and Address

MANO, Yoshiro
c/o National Institute of
Livestock and Grassland Science,
National Aglicultural Research
Organization
768, Senbonmatsu, Nishinasuno
Nasu-gun, Tochigi 329-2793
Japan

State of Nationality: JP
State of Residence: JP
Telephone No.:
Facsimile No.:
Teleprinter No.:

3. Further observations, if necessary:

4. A copy of this notification has been sent to:

[X] the receiving Office
[ ] the International Searching Authority
[X] the International Preliminary Examining Authority
[ ] the designated Offices concerned
[X] the elected Offices concerned
[ ] other:

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Susumu Kubo

Telephone No.: (41-22) 338.83.38

Form PCT/IB/306 (March 1994)

004108792

PATENT COOPERATION TREA

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF TRANSMITTAL OF COPIES OF TRANSLATION OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 72.2)

To:

SHIMIZU, Hatsushi
Kantetsu Tsukuba Bldg. 6F
1-1-1, Oroshi-machi
Tsuchiura-shi, Ibaraki 300-0847
JAPON

Date of mailing (day/month/year) 19 November 2001 (19.11.01)	
Applicant's or agent's file reference MOA-104PCT	IMPORTANT NOTIFICATION
International application No. PCT/JP00/06512	International filing date (day/month/year) 22 September 2000 (22.09.00)
Applicant NATIONAL INSTITUTE OF AGROBIOLOGICAL SCIENCES et al	

1. Transmittal of the translation to the applicant.

The International Bureau transmits herewith a copy of the English translation made by the International Bureau of the international preliminary examination report established by the International Preliminary Examining Authority.

2. Transmittal of the copy of the translation to the elected Offices.

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following elected Offices requiring such translation:

CA,CN,US

The following elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

JP

3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report.

It is the applicant's responsibility to prepare and furnish such translation directly to each elect d Office concerned (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 740.14.35

Authorized officer

Eliott PERETTI

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Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference MOA-104PCT	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/JP00/06512	International filing date (*day/month/year*) 22 September 2000 (22.09.00)	Priority date (*day/month/year*) 24 September 1999 (24.09.99)
International Patent Classification (IPC) or national classification and IPC G01N 27/447		
Applicant NATIONAL INSTITUTE OF AGROBIOLOGICAL SCIENCES		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 8 sheets, including this cover sheet.

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These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
23 February 2001 (23.02.01)	03 July 2001 (03.07.2001)
Name and mailing address of the IPEA/JP Facsimile No.	Authorized officer Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

national application No.
PCT/JP00/06512

I. Basis of the report

1. With regard to the **elements** of the international application:*

☒ the international application as originally filed

☐ the description:

pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

☐ the claims:

pages _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages _____, filed with the letter of _____

☐ the drawings:

pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

☐ the sequence listing part of the description:

pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* *Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).*

** *Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.*

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/JP 00/06512

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-17	YES
	Claims		NO
Inventive step (IS)	Claims	15, 16	YES
	Claims	1-14, 17	NO
Industrial applicability (IA)	Claims	1-17	YES
	Claims		NO

2. Citations and explanations

Document 1: Isao Shimamoto, Takuji Sasaki, "Saibou Kougaku Bessatsu, Shokubutsu Saibou Kougaku Series 7: Shinpan Shokubutsu no PCR Jikken Protocol; Kakusan no Tanrihou to Genome Idenshi Hatsugen no Saishin Kaisekihou", Kabushiki Kaisha Shujunsha, 01 July, 1997, the 1st printing and issue, pp. 182 to 189; publisher's inscription at the end of the book; page 184, lines 22 to 30,, column "Kigu•Souchi", "Mini Gel Denki Eidou Souchi (Advance; Mupid-2)";

Page 186, Fig. 2 shows a gel plate that has used Applied Biosystems 373A DNA sequencers.

Document 2: JP, 09-043196, A (Japan as represented by the Director General of Agriculture, Forestry and Fisheries National Institute of Agrobiological Resources), February 14, 1997 (14.02.97), Fig. 1, (Family: none)

Document 3: JP, 08-166370, A (Norifumi Hirota), June 25, 1996 (25.06.96), [0010]; Fig. 2, (Family: none)

Document 4: US, 5051162, A (Hitachi, Ltd.), September 24, 1991 (24.09.91), Fig. 1 & JP, 08-251988, A & DE, 4011779, A

Column 4, lines 51 to 61 indicate that the DNA of 30 samples can be analysed using 300 mm X 200 mm of gel.

Document 5: Electrophoresis, 14(7), pp. 566 to 569 (1993)

Document 5 discloses the feature of carrying out argentation on the DNA band and of detecting the polymorphism of the gene using a discontinuous buffer in polyacrylamide gel electrophoresis.

Document 6: Electrophoresis, 16(3), pp. 345 to 349 (1995)

Document 6 indicates that in a discontinuous buffer system the width of the DNA band becomes smaller and the resolution increases.

Document 7: Applied and Environmental Microbiology, 62(8), pp. 2947 to 2951 (1996)

Page 2949, right column, lines 28 to 43 and Fig. 2 indicate that by using a gel containing a modifier that is formamde, the resolution of the band can be increased.

Document 8: Electrophoresis, 20(6), pp. 1177 to 1185, (June 1999)

Document 8 discloses a heteroduplex method used in the analysis of polymorphism (See the abstract section).

(1) Claim 1

When comparing the invention disclosed in Claim 1 with the invention disclosed in Document 4, the invention disclosed in Claim 1 is able to carry out the electrophoresis of 32 samples or more simultaneously on a single sheet of a gel plate, whereas the invention disclosed in Document 4 is able to carry out the

electrophoresis of 30 samples simultaneously on a single sheet of a gel plate and in this sense the inventions differ.

However, a person skilled in the art would be able to determine the number of samples appropriately by altering the width and the intervals of the lanes as a matter of design.

Therefore, the invention disclosed in Claim 1 could be easily derived from the invention of Document 4 and thus, does not involve an inventive step.

(2) Claim 2

In addition to the reasoning given in section (1) above, an electrophoresis method for nucleic acid using a discontinuous buffer-type gel is a known method, as described in Documents 5 and 6.

Therefore, the invention disclosed in Claim 2 could be easily derived from the invention of Document 4 and this known method and thus, does not involve an inventive step.

(3) Claim 3

In addition to the reasoning given in section (1) above, the feature of analysing a nucleic acid sample by making it into a single strand using a modifying process is an analysing method which was sufficiently common practice prior to the present application so that there is no need to give examples.

Therefore, the invention disclosed in Claim 3 could be easily derived from the invention of Document 4 and thus, does not involve an inventive step.

(4) Claim 4

In addition to the reasoning given in section (1) above, the feature of carrying out argentation or fluorochroming on a nucleic acid band is merely a method

of chromatography for which there is no need to give examples.

Therefore, the invention disclosed in Claim 4 could be easily derived from the invention of Document 4 and thus, does not involve an inventive step.

(5) Claim 5

In addition to the reasoning given in section (1) above, the feature of using electrophoresis in genome polymorphism is common practice.

Therefore, the invention disclosed in Claim 5 could be easily derived from the invention of Document 4 and thus, does not involve an inventive step.

(6) Claim 6

In addition to the reasoning given in section (3) above, Document 7 discloses the use of a modifying gel in polymorphic analysis.

Therefore, the invention disclosed in Claim 6 could be easily derived from the inventions of Document 4 and Document 7 and thus, does not involve an inventive step.

(7) Claim 7

In addition to the reasoning given in section (5) above, polymorphic analysis using the AFLP method was known prior to the present application, as described in Document 1.

Therefore, the invention disclosed in Claim 7 could be easily derived from the invention of Document 4 and thus, does not involve an inventive step.

(8) Claim 8

In addition to the reasoning given in section (5) above, polymorphic analysis using heteroduplex DNA was known prior to the present application, as described in

Document 8.

Therefore, the invention disclosed in Claim 8 could be easily derived from the invention of Document 4 and thus, does not involve an inventive step.

(9) Claim 9

In addition to the reasoning given in section (5) above, in polymorphic analysis isolating a DNA fragment that shows polymorphism from a gel and further analysing it, is sufficiently common practice in this field that there is no need to give examples.

Therefore, the invention disclosed in Claim 9 could be easily derived from the invention of Document 4 and thus, does not involve an inventive step.

(10) Claim 10

For the same reason as that given in section (9) above, Claim 10 does not involve an inventive step.

Claim 10 uses the phrase "isolated using the method disclosed in Claim 9" to specify the DNA showing polymorphism. However, just because the DNA showing polymorphism was obtained using the method of Claim 9 does not give it particular qualities, structures or properties in comparison with DNA showing polymorphism which is obtained using any other method.

(11) Claim 11

In addition to the reasoning given in section (5) above, carrying out gene analysis using the electrophoresis of a nucleic acid is sufficiently common practice that there is no need to give examples.

Therefore, the invention disclosed in Claim 11 could be easily derived from the invention of Document 4 and thus, does not involve an inventive step.

(12) Claim 12

In addition to the reasoning given in section (11) above, F2, RI and QTL are commonly the object of gene analysis.

Therefore, the invention disclosed in Claim 12 could be easily derived from the invention of Document 4 and thus, does not involve an inventive step.

(13) Claims 13 and 14

In addition to the reasoning given in section (5) above, the fact that the polymorphism of DNA is an effective marker is sufficiently well known so that there is no need to give examples and various DNA maps have been prepared.

Therefore, the invention disclosed in Claim 13 and 14 could be easily derived from the invention of Document 4 and thus, does not involve an inventive step.

(14) Claims 15 and 16

The feature wherein numbers are given to the plate of a sub-library as three-dimensional co-ordinates and the clone is selected from the sub-library is not disclosed in any of the above-mentioned documents. Therefore, the invention disclosed in Claim 15 and the invention disclosed in the dependent claim of Claim 15 involve an inventive step.

(15) Claim 17

Claim 17 does not involve an inventive step for the same reasoning given in section (1) above.